California MLPA Master Plan Science Advisory Team
Round 3 Outputs from Bioeconomic Model Evaluations: Biomass and Self-recruitment

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Table 2a: Biomass and Self-recruitment. Biomass and self-recruitment for each of the proposed marine protected areas (MPAs) in the round 3 draft MPA proposals for the north coast study region (NCSR) were estimated from the University of California, Santa Barbara (UCSB) bioeconomic model. Values reported in this table were calculated under the maximum sustainable yield (MSY)-type management scenario. Values of biomass are scaled relative to total unfished biomass such that values of 0 indicate no biomass and values of 1 indicate maximum unfished biomass. Self-recruitment is the proportion of settling larvae in an MPA that were produced within that MPA. This metric provides information on the relative isolation of the MPA from other larval sources. Values of self-recruitment are between 0 and 1, where a value of 0 indicates that a population is totally isolated. For round 3 evaluations, seven species were modeled: Black rockfish, brown rockfish, cabezon, redtail surfperch, Dungeness crab, red abalone, and red sea urchin. Due to the unique characteristics of the Dungeness crab fishery, this species is presented separately in Table 2b. For Round 3, modelers assumed that no consumptive uses were permitted in proposed MPAs unless identified by species and gear type.

Round 3 Draft MPA Proposal	MPA Name	Species	Biomass	Self-recruitment
NCP	Big Flat SMCA	Black Rockfish	0.0023	0.0021
NCP	Big Flat SMCA	Brown Rockfish	0.0019	0.002
NCP	Big Flat SMCA	Cabezon	0.0035	0.0038
NCP	Big Flat SMCA	Red Abalone	0.003	0.0228
NCP	Big Flat SMCA	Red Sea Urchin	0.0012	0.0008
NCP	Big Flat SMCA	Redtail Surfperch	0.0135	1
NCP	Mattole Canyon SMR	Black Rockfish	0.0123	0.0104
NCP	Mattole Canyon SMR	Brown Rockfish	0.0117	0.0117
NCP	Mattole Canyon SMR	Cabezon	0.0052	0.0057
NCP	Mattole Canyon SMR	Red Abalone	0.0046	0.035
NCP	Mattole Canyon SMR	Red Sea Urchin	0.0107	0.0065
NCP	Mattole Canyon SMR	Redtail Surfperch	0.0012	1
NCP	Navarro River Estuary SMRMA	Black Rockfish	0.0005	0.0006
NCP	Navarro River Estuary SMRMA	Brown Rockfish	0.0002	0.0003
NCP	Navarro River Estuary SMRMA	Cabezon	0.0001	0.0001
NCP	Navarro River Estuary SMRMA	Red Abalone	0.0001	0.0003
NCP	Navarro River Estuary SMRMA	Red Sea Urchin	0	0
NCP	Point Cabrillo SMR	Black Rockfish	0.0016	0.0014
NCP	Point Cabrillo SMR	Brown Rockfish	0.0024	0.0031
NCP	Point Cabrillo SMR	Cabezon	0.0053	0.0049
NCP	Point Cabrillo SMR	Red Abalone	0.006	0.0206
NCP	Point Cabrillo SMR	Red Sea Urchin	0.0028	0.0022
NCP	Point Cabrillo SMR	Redtail Surfperch	0.0008	1
NCP	Point St. George Reef Offshore SMCA	Black Rockfish	0.002	0.0012
NCP	Point St. George Reef Offshore SMCA	Brown Rockfish	0.0034	0.0048
NCP	Point St. George Reef Offshore SMCA	Red Sea Urchin	0.0025	0.0011
NCP	Pyramid Point SMCA	Black Rockfish	0.006	0.0043

Round 3 Draft MPA Proposal	MPA Name	Species	Biomass	Self-recruitment
NCP	Pyramid Point SMCA	Brown Rockfish	0.0075	0.0103
NCP	Pyramid Point SMCA	Cabezon	0.0118	0.0072
NCP	Pyramid Point SMCA	Red Abalone	0.0125	0.0654
NCP	Pyramid Point SMCA	Red Sea Urchin	0.0028	0.0017
NCP	Pyramid Point SMCA	Redtail Surfperch	0.0243	1
NCP	Reading Rock SMCA	Black Rockfish	0.0043	0.0124
NCP	Reading Rock SMCA	Brown Rockfish	0.0025	0.018
NCP	Reading Rock SMCA	Cabezon	0.0037	0.0191
NCP	Reading Rock SMCA	Red Abalone	0.0033	0.1191
NCP	Reading Rock SMCA	Red Sea Urchin	0.0012	0.0032
NCP	Reading Rock SMCA	Redtail Surfperch	0.0145	1
NCP	Reading Rock SMR	Black Rockfish	0.0055	0.0146
NCP	Reading Rock SMR	Brown Rockfish	0.0088	0.0643
NCP	Reading Rock SMR	Red Sea Urchin	0.0085	0.0224
NCP	Samoa SMCA	Redtail Surfperch	0.0134	1
NCP	Sea Lion Gulch SMR	Black Rockfish	0.0204	0.018
NCP	Sea Lion Gulch SMR	Brown Rockfish	0.0291	0.03
NCP	Sea Lion Gulch SMR	Cabezon	0.0085	0.0093
NCP	Sea Lion Gulch SMR	Red Abalone	0.0073	0.0564
NCP	Sea Lion Gulch SMR	Red Sea Urchin	0.0258	0.017
NCP	Sea Lion Gulch SMR	Redtail Surfperch	0.012	1
NCP	South Cape Mendocino SMR	Black Rockfish	0.0162	0.0086
NCP	South Cape Mendocino SMR	Brown Rockfish	0.0237	0.0216
NCP	South Cape Mendocino SMR	Cabezon	0.0075	0.0041
NCP	South Cape Mendocino SMR	Red Abalone	0.0073	0.053
NCP	South Cape Mendocino SMR	Red Sea Urchin	0.0158	0.0051
NCP	South Cape Mendocino SMR	Redtail Surfperch	0.0116	1
NCP	Ten Mile SMR	Black Rockfish	0.0106	0.0094
NCP	Ten Mile SMR	Brown Rockfish	0.0164	0.022
NCP	Ten Mile SMR	Cabezon	0.0156	0.0135
NCP	Ten Mile SMR	Red Abalone	0.019	0.0947
NCP	Ten Mile SMR	Red Sea Urchin	0.016	0.0118
NCP	Ten Mile SMR	Redtail Surfperch	0.012	1
NCP	Ten Mile Beach SMCA	Redtail Surfperch	0.0042	1
NCP	Ten Mile Estuary SMRMA	Redtail Surfperch	0.0002	1
NCP	Vizcaino SMCA	Black Rockfish	0.0091	0.0102
NCP	Vizcaino SMCA	Brown Rockfish	0.0085	0.0146
NCP	Vizcaino SMCA	Cabezon	0.0131	0.0083
NCP	Vizcaino SMCA	Red Abalone	0.0145	0.0842
NCP	Vizcaino SMCA	Red Sea Urchin	0.0037	0.0025
NCP	Vizcaino SMCA	Redtail Surfperch	0.0103	1

Table 2b: Biomass of Dungeness Crab. Biomass for Dungeness crab for each of the proposed marine protected areas (MPAs) in the round 3 draft MPA proposals for the north coast study region (NCSR) was estimated from the University of California, Santa Barbara (UCSB) bioeconomic model. Values reported in this table were calculated under the maximum sustainable yield (MSY)-type management scenario. Values of biomass are scaled relative to total unfished biomass such that values of 0 indicate no biomass and values of 1 indicate maximum unfished biomass. For Round 3, modelers assumed that no consumptive uses were permitted in proposed MPAs unless identified by species and gear type.

Round 3 Draft MPA Proposal	MPA Name	Biomass
NCP	Big Flat SMCA	0.0058
NCP	Mattole Canyon SMR	0.0162
NCP	Point Cabrillo SMR	0.0005
NCP	Point St. George Reef Offshore SMCA	0.0046
NCP	Pyramid Point SMCA	0.0076
NCP	Reading Rock SMCA	0.0077
NCP	Reading Rock SMR	0.0248
NCP	Samoa SMCA	0.0075
NCP	Sea Lion Gulch SMR	0.0195
NCP	South Cape Mendocino SMR	0.016
NCP	Ten Mile SMR	0.0282
NCP	Ten Mile Beach SMCA	0.0064
NCP	Ten Mile Estuary SMRMA	0.0002
NCP	Vizcaino SMCA	0.0099